

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
A National Broadband Plan for Our Future) **GN Docket No. 09-51**

REPLY COMMENTS OF INTEL CORPORATION

July 21, 2009

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Intel Corporation (Intel) hereby submits the following Reply Comments in response to the Notice of Inquiry in the above-captioned proceeding. Intel, the world leader in silicon innovation, develops technologies, products, and initiatives to continually advance how people work and live.[1] Intel has a long history of supporting public policies that promote ubiquitous, affordable, high-quality broadband in the United States (U.S.) and around the world. Intel is committed to America's global competitiveness and has years of experience working to advance universal broadband and personal computer (PC) ownership by unserved and underserved populations across the globe.

1.0 Executive Summary

Intel's Comments[2] in the initial round of this proceeding made the following recommendations regarding the National Broadband Plan, which we further discuss herein:

1 Additional information about Intel is available at www.intel.com/pressroom and <http://blogs.intel.com/policy>.

2 Intel's complete Comments are available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520219810

- Regulatory Structure. The Plan should be grounded in FCC policies designed to foster facilities-based competition.
 - Demand-Side Initiatives.
 - Demand-side barriers preclude a larger number of Americans from adopting broadband than does a lack of broadband availability. Thus, widespread and scalable demand-side initiatives are necessary to significantly improve our nation's broadband "bottom line."
 - Targeted programs aimed at lowering barriers to broadband adoption (such as digital literacy, PC ownership, and the high cost of broadband service) for low income and other vulnerable populations could vastly increase broadband penetration and use.
 - The U.S. can make strides relative to other nations by focusing significant effort and resources on demand-side initiatives.
 - Supply-Side Initiatives. Congress and the FCC should foster deployment policies that would give all consumers choice between mobile wireless and wireline broadband platforms, and not erect any artificial barriers or in/direct biases.
 - Definition of Broadband.
 - The FCC should define targeted metrics to quantify broadband, such as subscriber penetration and availability by technology, application utilization, and broadband network capabilities.
 - Any Commission definition of broadband should include multiple factors, not just a speed/bandwidth metric. Likewise, any Commission definition of underserved should include multiple factors.
 - Mapping and Data Gathering.
 - The FCC should develop a graphical broadband mapping tool, based on its revised data gathering methods, to track the nation's broadband progress. Linking the FCC database of provider-reported service bandwidth to the various broadband speed test websites (which collect actual usage data rates) could be a valuable cross-check on the FCC's new data gathering.
 - The Plan should include an ongoing information-gathering effort to document, track, and grade the progress of U.S. broadband policies, deployment, capability, penetration, and prices relative to other nations.
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- Spectrum Reform.
 - The “Radio Spectrum Inventory Act,” S.649, is a useful starting point for spectrum inventory/census efforts.
 - The NTIA should identify significant new bands from government users, *e.g.* 200 MHz or more, for auction.
 - Congress should act quickly to explicitly grant the FCC two-sided auction authority and auction voucher authority for a fixed term.

2.0 Numerous Commenters Advocate Support for Demand-Side Adoption Programs as Critical to the National Broadband Plan

In our Comments, Intel stressed the importance of demand-side stimulation along with addressing the supply side. Intel presented data demonstrating that demand-side deficiencies affect a greater number of households than lack of broadband supply. As a consequence, the ubiquitous adoption/penetration goals of the national broadband plan cannot be met without a significant and targeted effort on the demand side.

Subsequent to the Comment deadline in this proceeding, the NTIA released its initial Notice of Funding Availability document. In that document, \$150 million is allocated in a first phase, for broadband adoption activities including projects focused on broadband education, awareness, training, access, equipment, or support, particularly among vulnerable population groups.[3] Ultimately, a minimum of \$250 million will be allocated for that purpose.

³ See Recovery Act div. A, tit. II &6001(b)(5), 123 stat. at 128, 513.

In order to quantify the sufficiency of that funding, and any additional demand-side funding requested via the National Broadband Plan, average cost data must be compiled from past programs aimed at increasing broadband adoption. According to recent 2009 figures released after the Comment deadline, 63 percent of U.S. households now subscribe to broadband service.[4] Stated differently, 37 percent of households (approximately 43 million) do not subscribe. Subtracting a very optimistic estimate that 50% of unserved households (approximately 5 million) would readily subscribe upon service availability, leaves approximately 38 million households where some degree of demand-side effort could have value.

Beginning with the \$250 million figure from the stimulus funding, that averages out to \$6.58 per household, across the 38 million households. While the typical costs of broadband adoption stimulus programs remain to be tabulated, it would seem very likely that it will require significantly greater than an average of \$6.58 per household. This analysis supports the intention of Congress and the Administration that the broadband stimulus funding is only a "down payment" on future broadband monies.

In the record of filed Comments, more than one hundred parties commented on the importance of adoption and demand-side programs in the National Broadband Plan. Of those, more than fifty provided specific data and proposals regarding demand-side efforts. There were numerous dimensions and levels of implementation proposed within each of the main demand-side topics, some with no overlap whatsoever. In addition, the proposals had a range of specificity: some were quite broad, using general language;

4 Pew Internet & American Life Project, Home Broadband Adoption 2009, June 2009.

others were highly specific to a focused subset of a particular topic. In broad terms, the comments addressing demand-side and adoption/penetration issues covered the following topics:

- Supplement the \$250M BTOP funding for “sustainable broadband adoption” programs via the National Broadband Plan.
- Discounts and/or subsidies for broadband service and equipment.
- Computer/PC or other host device discounts and/or subsidies and/or usage training.
- Universal Service Fund reforms, e.g. Lifeline/Linkup equivalent.
- Adoption programs targeted at specific demographics (*e.g.*, people with disabilities, minorities, elderly, children, low-income).
- Programs to demonstrate value of broadband usage in daily life.
- Improved data collection on adoption gaps and barriers.
- Effect of the level of broadband competition on adoption.
- Adoption impact of online safety and privacy issues.
- Public database of broadband adoption programs (evaluation of success, best practices, costs to implement, etc.).
- Cooperation with other federal agencies, state and local governments, educational institutions, local and private organizations, on demand-side programs.
- Digital literacy curriculum requirements in public schools.
- Tax credits and/or tax reforms that impact adoption.
- Health, education, energy initiatives that increase the value of broadband.

In Appendix A, Intel provides a comprehensive digest of the numerous parties that filed comments supporting increased demand-side efforts to overcome broadband adoption/penetration barriers. Currently, the Commission’s workshops for the

broadband plan (listed at <http://broadband.gov/workshops.html>) do not appear to adequately cover this range of demand-side topics. Intel hopes the topical summary provided above, and the digest of Comments in Appendix A, will aid in expanding the scope of demand-side efforts. Additionally, the workshops do not appear to cover spectrum regulatory and legislative reforms. Intel urges coverage of this important topic, which affects both the supply side and the demand side.

3.0 Numerous Commenters Advocate Transitioning the Universal Service Fund to Support Broadband as Part of the National Broadband Plan

Intel recommends Universal Service Fund (USF) reform to include subsidies for broadband. Provided below are key USF recommendations to enable all Americans to enjoy the substantial benefits that broadband has to offer.

3.1 Intel recommends timely transition of USF to include technology-neutral funding for broadband.

There is overwhelming support in this proceeding for reform of USF to include broadband. For example, the Coalition of Organizations for Accessible Technology (COAT)[5], in response to the question on how broadband can be made more affordable, recommends the extension of USF to broadband, to support the low-income population. COAT states: “For many members of the target population, broadband service is necessary to obtain the functional equivalent of traditional telephone service.”[6]

⁵ Unless noted otherwise, any quoted remarks in this section are attributable to Comments filed in the instant proceeding by the referenced party. Page numbers refer to the page counter in the pdf reader.

⁶ COAT comments at 14

With the pervasive growth of broadband technologies and services, it has become apparent that broadband is increasingly relied upon not only for data but voice services as well. AT&T in their November 2008 Comments to the FCC regarding the high cost universal support (WC Docket Number 05-337, at 2), state that in the seven years since the intercarrier compensation reform proceeding was launched, the telecommunications marketplace has changed dramatically:

“Circuit-switched networks deployed primarily for voice service are rapidly yielding to optical IP packet-switched networks over which voice is just one of many applications. According to the National Cable Television Association, cable operators already provide VoIP service to over 16 million subscribers, and they offer such service to more than 100 million customers. Over-the-top VoIP providers serve millions of other customers, with Vonage alone serving over 2.6 million.”

This transition can be expected to continue, further emphasizing the importance of USF funding for broadband technologies. In support of such funding, the Benton Foundation et. al., recommends a modification to the existing USF to provide funds for building and maintenance of a national broadband system that provides meaningful access to all Americans: “... [P]articularly rural populations where provisions of broadband would otherwise prove too expensive and where residents otherwise have few opportunities to receive the necessary equipment and training to provide meaningful access.” [7]

Intel supports the view that the timely transition to broadband support is paramount. Intel proposes that an overall plan and timetable be established quickly, to incrementally transition the existing programs into a broadband fund (with the intent to transition to a final single fund for broadband).

7 Benton, et. al, Comments at 1

Several commenters mention that broadband usage is not only a function of the availability of the network and service, but also whether potential users understand the value of using broadband, and have the devices capable to access the network. Verizon states:

“One of the commonly cited factors in the decision not to go online relates to 'usability' – accounting for 17 percent of non-adapters in the PEW survey”. “In addition to helping to develop computer skills, the national broadband policy should also consider ways of helping more Americans have the computers or other devices they need to go online.” [8]

The Communications Workers of America (CWA) additionally support improved computer literacy: “Any (Universal Service) Policy to expand broadband use must begin with efforts to make non users comfortable with, and interested in, computers and broadband.” [9]

Similarly, the Benton Foundation recommends:

“We therefore propose expansion of the new universal service fund to include not merely provision and build out of service, but also any necessary customer premise equipment (CPE) and training so that all Americans can benefit from access to broadband.” [10]

3.2 Funds should be raised through a fixed charge on end users, e.g. based on numbers and/or connections.

USF has seen a decrease in overall funding levels, which can be attributed in a large part to the increase of broadband usage for voice connections. In its comments, T-Mobile states:

8 Verizon Comments at 31.

9 CWA Comments at 55, submittal number 5.

10 Benton et. al. Comments at 2.

“The commission should also ensure the sustainability of the USF going forward by committing to improve the contribution system through the adoption of a numbers-based mechanism.” “As more and more US communications traffic travels over broadband networks, it will be increasingly difficult to collect USF funds based on interstate end-user telecommunications revenues.” [11]

The comments of The Communications Workers of America mirror this observation:

“Unfortunately, the USF funding base is contracting just as the needs for USF monies are increasing.” [12]

Additionally, any shortfalls cannot be addressed by simply increasing the percent collected through the current revenue based system, as this would eventually place a strain on the ongoing adoption of broadband services as well as operators’ business models. As previously mentioned, VoIP connections are also likely to increase in parallel with broadband expansion. With this on the horizon, Intel believes it is logical to transition the charges to a fixed amount based on numbers and/or connections.

3.3 Congress should define relevant terms including limited income, and high cost areas, unserved and underserved, and minimum service levels.

Intel believes along with others that it is important to provide clarity on the several definitions used to describe areas of focus for universal service support. Without clarity and consistency in these definitions, it will be difficult to ensure funding for those who actually need it. Benton et. al. writes:

“The Recovery Act has highlighted the issue of uneven deployment of broadband across rural America by introducing the terms 'unserved' and 'under-served' to describe geographies and populations that should receive

11 T-Mobile Comments at 29.

12 CWA Comments at 24, submittal number 1.

priority for stimulus investment. Neither of these terms has been adequately defined.” [13]

They go on to explain that the definition of underserved has related factors, such as speed and competition. Clearly in areas with little or no competition, affected by the lack of population density and subsequent business opportunity, the level of service speeds and technology offerings are diminished. Better clarity in these terms will focus the subsidies in those areas where the market has not adequately served. To further illustrate the point, the National Telecommunications Cooperative Association (NTCA) writes: “[T]he Commission should open a proceeding to define and identify 'market failure areas' throughout the United States.... in order to provide consumers living in those areas with affordable broadband services.” [14]

Intel believes that the information gathered through the Broadband Data Improvement Act will help to provide valuable metrics and important clarity into those areas that can be identified as unserved and underserved. The definitions should be established by Congress as soon as possible.

3.4 USF Summary

There is overwhelming support for reform of USF to include broadband, and to ensure that broadband services are made available, affordable and useable for all Americans. Intel supports the timely transition of USF to include broadband, funded by a fixed charge. Note that Appendix A of this document contains additional commentary on the USF from multiple parties, filed during the comment round of this proceeding.

13 Benton et. al. Comments at 16.

14 NTCA Comments at 15.

4.0 Conclusion

The wide range of demand-side issues raised by parties in this proceeding demonstrates the huge scope of the task. As the Commission prepares to submit the National Broadband Plan to Congress, Intel urges the Commission to devote resources to demand-side issues that are commensurate with this huge task. Much information remains to be collected and evaluated, and the record of Comment shows the willingness of both the public and private sectors to contribute to the Commission's demand-side broadband plan.

In addition, the Commission workshops, as explained in 2.0 above, should be expanded to cover a broader range of demand-side issues, as well as spectrum reform issues. As explained in Section 3.0, Intel supports the timely transition of USF to include broadband, funded by a fixed charge.

Respectfully Submitted,

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APPENDIX A

A. Digest of Broadband Adoption / Demand-Side Comments Submitted

Below, Intel provides summaries and excerpts of all parties that filed comments (excluding brief text comments) related to broadband adoption and demand-side efforts, including any recommendations, as space permits. Due to the large volume of comments filed, it is possible that relevant commentary was inadvertently missed. The order of the listing below is arbitrary. Page numbers refer to the page counter in the pdf file reader.

A.1 Time-Warner Cable:

Time Warner Cable supports a broadband adoption program modeled after the existing Lifeline and Linkup programs, focused on the economic obstacles for low-income households. "Such programs have been successful in promoting increased telephone subscribership by low-income households, and there is every reason to think they would achieve similar results for broadband Internet access service. Indeed, the Commission already has sought comment on a pilot program by which \$300 million would be made available annually, over a three-year period, for discounts on broadband Internet access service and equipment for low-income consumers. The national broadband plan should embrace and incorporate a similar initiative, provided that it is designed and implemented on a technologically neutral basis...." (pg 25)

A.2 The Rural Internet and Broadband Policy Group:

The group states, "In order to learn about the state of broadband adoption and ways to increase adoption of the technology, the Commission should collect data with the goal of assessing and creating adoption. We recommend the Commission:

1). Collect data on the challenges communities face in using broadband technology such as affordability, language barriers, technology training, and access to hardware. 2). Collect data on prices for actual and advertised broadband service." "3). Obtain answers to the following questions from every community: a). Do you have access to broadband? Where, when, how, for how long? b). Do you have affordable broadband? Is the cost within reach of the members in your community? c). Is the speed of your broadband service the speed you want? Does your broadband speed meet your needs? d). What has encouraged you to begin/continue/increase your use of broadband service? e). What limits your use of broadband technology?" (pg 10)

A.3 Cox Communications:

Cox supports a pilot program for at-risk, low-income students and their families in 2010, leading to a national program by 2012. "By 2010, establish the Commission as a national think tank and information clearinghouse for noteworthy broadband adoption efforts and launch a comprehensive website to contain this data." (pg 10) The effort would include identifying success stories, gathering performance data, and evaluating the success of existing programs.

"Accelerating broadband adoption begins with the identification, ubiquitous availability and increased utility of applications that offer clear public value in a secure environment. We know that such driver applications exist – home health monitoring, energy usage programs, and on-line educational improvement opportunities are but a few of the obvious examples." (pg 10)

"Working with the Department of Education and the states, the Commission should encourage public-private collaboration between industry and educational institutions on broadband adoption efforts. These partnerships should strive to standardize Web interfaces to enhance online teacher training, and should incorporate digital literacy into curriculum across all ages and disciplines. Increasing the availability of computers and compelling content in educational settings will further drive demand for broadband connectivity." (pg 11)

A.4 Hughes Network Systems and Wildblue Communications:

Hughes and Wildblue state their support for "[l]imited government intervention...in the form of equipment and service fee subsidies and/or tax credits that increase demand, satellite-based broadband eligibility for universal service fund support mechanisms, and Rural Utilities Service regulations and statutes that encourage nationwide or multi-state projects...." (pg 4) They go on to state "...policies and programs that make broadband services more affordable to those with limited means would directly address the Recovery Act's call for nationwide broadband access...." (pgs 16-17)

"Financial incentives that increase customer broadband demand by making equipment and service affordable should be a Federal priority. These incentives can go to end users either directly (in the form of subsidies of the cost of equipment like remote terminals, installation, and/or recouping service fees) or indirectly (in the form of subsidies to service providers tied to the number of subscribers that they signed up, with the savings passed on to subscribers through lower installation or service costs). Comparable incentives could also take the form of tax credits." (pg 17)

A.5 Coalition of Organizations for Accessible Technology:

The coalition states, "The low rates of broadband adoption are particularly troubling [among those with disabilities] given how important broadband is to the target population to enjoy functionally equivalent communications. Affordable and accessible broadband

service helps to level the playing field for individuals who cannot see, or cannot hear, or cannot easily get around." (pg 9)

A.6 Verizon:

Verizon states, "Too many consumers lack computers; lack the knowledge, skills, or comfort level to go online; or fail to recognize the relevance of broadband to their lives. Such issues – and not availability or price – are the predominant obstacles to more widespread adoption." (pg 7) "...policies that increase computer ownership, teach people how to use those computers and navigate the Internet, and demonstrate the relevance and benefits of broadband...could go far in increasing broadband adoption." (pg 29)

"...policymakers must make a concerted effort to ensure that the computer skills needed to function in a broadband world are a core part of this country's education system. In today's economy, computer literacy must go hand-in-hand with literacy writ large, and no children should be denied computer literacy skills that they will need in order to succeed." (pg 35) "Policymakers should [also] encourage...programs that provide opportunities for adults to learn computer literacy skills" (pg 35) [and] "projects that make going online less intimidating for consumers not adept with technology. For example, some individuals may find smartphones, netbooks or other simple devices more user-friendly as they are first becoming familiar with the Internet." (pg 36)

"Demand-side programs also could include the funding of community outreach programs targeted to older populations. Such programs could be handled through community colleges, community centers, libraries, or any other available settings." (pg 35) "Likewise, protecting consumers' privacy is an essential part of encouraging consumers to adopt and use broadband." (pg 9) Verizon recommends a consumer-focused approach that encourages meaningful information and choice from providers.

Verizon suggests reform of outdated state and local taxes that currently apply to voice and video services, and amount to about 12-17% of monthly bills. "[T]hese discriminatory taxes take money out of consumers' pockets that could be spent to subscribe to broadband services...." (pg 134)

"[B]roadband affordability concerns [could be addressed by] a refundable tax credit for low-income Americans to help them afford online access. For example, Congress should consider a 100% refundable tax credit for Americans that qualify for the earned income tax credit..." (pg 132) "Congress might also consider refundable tax credits to help low-income families purchase computers or other devices that they could use to go online. This approach would directly address one obstacle to greater broadband adoption in a sensible and competitively neutral way." (pg 132)

A.7 M2Z Networks:

M2Z states "U.S. broadband adoption is stalled because of a duopoly market structure." (pg 7) "As long as the broadband market remains a duopoly, there will be a continued and persistent barrier to greater broadband adoption." (pg 12)

" The Commission itself has recently acknowledged [in the Rural Broadband Strategy Report] that 'the most accurate marker for low broadband adoption is most likely low income.'" (pg 19)

A.8 Computer & Communications Industry Association:

The association states "The Commission should...coordinate with the Department of Education to increase digital literacy to encourage broadband adoption and with HHS on the development of health IT and telehealth initiatives, to be enabled by the National Broadband Plan." (pg 33)

A.9 Communications Workers of America:

The CWA urges a national broadband plan that includes "...identification of broadband gaps and barriers to broadband adoption." (pg 4) "Many Americans...do not know how to access the Internet, do not see its value, or cannot afford a computer or broadband access. To address the affordability issue, the...Lifeline/Linkup subsidies should be expanded to include support for broadband access and equipment, including computers." (pg 26) "...establish a program that provides free or low-cost computers to every low-income middle-school child who meet academic and attendance criteria." (pg 7)

"The Recovery Act provides a minimum of \$250 million to support broadband adoption programs and another \$200 million to support public computing centers. While these grants will help identify scalable projects, much more funding is needed to ensure that every school child and household can afford and has the skills necessary to access broadband in the home." (pg 26)

" The Commission should also establish broadband adoption goals and timetables, for the nation and for different underserved demographic and income groups. Publication of the Commission's new Form 477 data on broadband subscribers will facilitate development of adoption goals." (pg 14)

"The cost of computers, broadband access, and lack of digital skills serve as barriers to broadband adoption, even where the service is available. Broadband investment should be reinforced by efforts to make high speed Internet access and computers more affordable, and with programs to teach digital literacy, computer training, and outreach." (pg 42)

A.10 Connected Nation:

In describing their study efforts, Connected Nation states a critical element of their model is "an intensive and localized research campaign to measure and understand the barriers to broadband adoption and computer use in each community and among various demographic groups. Connected Nation conducts telephone surveys which are designed to obtain statistically significant results for every county..." (submittal 2, pg 58)

The telephone surveys ask "...about broadband availability and speed...the price they pay for service, how they use the Internet, and their demand for faster broadband service. Among those who don't subscribe to broadband and/or don't own a computer, we ask detailed questions about their barriers to computer ownership and broadband adoption. We analyze all of these data against demographics in order to understand availability and adoption in relation to income, education level, race, ethnicity, age, and other demographic characteristics." (submittal 1, pg 14)

"Through Connected Nation's state programs, these surveys are repeated each year, and broadband adoption metrics are tracked over time. Importantly, these annual measurements enable a better understanding of which programs are working (or not working) among various segments of the population and demographic groups." (submittal 2 pg 58)

Connected Nation cites figures on the increased adoption in a number of their programs in several states. Their key findings were that "the largest barrier to broadband adoption is a lack of awareness about broadband's benefits." "Likewise, the top barrier to computer ownership is also a perceived lack of need." They go on to cite figures on computer ownership and broadband barriers among several demographics (e.g. households with children, people with disabilities, rural households). (submittal 2, pg 56)

A.11 TCA Inc (Telecom Consulting Associates):

"Demand side issues such as digital literacy need to be addressed to better achieve broadband adoption. For example, more could be done to educate children in school about the Internet. Programs such as Connect-Kentucky's 'No Child Left Offline' program can help increase adoption rates. Other programs such as distance learning and tele-health can also lead to higher broadband adoption rates as well as programs designed to address the needs of the elderly." (pg 21)

A.12 Windstream Communications:

"Since the new Form 477 requires data to be reported by census tracts, the Commission can correlate broadband data directly with U.S. Census demographic information...." These census tract data can be mined for a deeper understanding of how socioeconomic conditions impact broadband adoption rates...." Further information may be gleaned from complementary mapping efforts produced by public-private partnerships at the local level." (pg 29)

A.13 NBCSL (National Black Caucus of State Legislators) et. al., joint filing:

"Study after study has shown that while many members of minority communities, African American communities in particular, may be able to access broadband the subscriber/adoption rate is startlingly low." "...we feel confident that the primary reason for low broadband adoption amongst communities of color is a lack of value." (pg 5-6)

"To overcome this issue of broadband value, the National Broadband Plan should encourage computer access both at home, in school and through community centers. A National Broadband Plan should likewise encourage the creation of culturally relevant content and applications that will help spur the increased adoption and use of broadband services by making such services increasingly relevant to the lives of everyday Americans." (pg 6)

"A National Broadband Plan should encourage each state to create a broadband technology plan with specific benchmarks and targeted programs that ensure adoption and use in low-income and minority communities." (pg 6)

A.14 ZeroDivide:

"Broadband adoption and demand strategies must be included in a National Broadband Plan to assure maximum utilization. Technology adoption programs in unserved and underserved communities work best when tied to other community outcomes such as civic participation, community development, health care delivery, education, worker training, entrepreneurial activity, job creation, and economic growth." (pg 3)

"...the National Broadband Plan should include a plan for more in-depth study into the broadband adoption and adoption barriers to individuals with disabilities. Current research surveys which measure broadband adoption rarely include meaningful information about broadband adoption among individuals with disabilities." (pg 7)

"...the Commission should support and/or implement programs that would subsidize recurring subscription costs for broadband services and fixed costs of obtaining computer equipment. The Universal Service program should be revised to subsidize broadband for low-income individuals under the Lifeline and Link-Up program." (pg 9)

Zero Divide states key elements to a broadband adoption program including: "Successful technology adoption requires target programs that address the specific barriers to adoption for a specific population; Community outreach and connections with trusted community organizations is required;" "Technology adoption in unserved and underserved communities fosters economic and educational opportunities, jobs, civic engagement, and health and well-being in these communities." (pg 16)

A.15 One Economy Corporation:

"Increasing the demand for broadband is as important, if not more so, than increasing the supply." "Sustainable usage and uptake of broadband [includes] five elements: Affordable broadband connections; Affordable hardware choices; Awareness of broadband options and benefits; Promotion of digital literacy; Prevalence of relevant content." (pg 7)

The major barriers to broadband adoption are: "Lack of relevant, culturally appropriate content;" (pg 10) "High cost of broadband and hardware;" (pg 10) "Lack of digital literacy or capacity;" (pg 11) "Lack of knowledge of broadband benefits." (pg 11) "...harnessing the...benefits and opportunities that broadband provides will require a well-designed and well-executed broadband adoption program. As long as broadband is not adopted or the populace does not possess the digital literacy skills necessary to reap its benefits, availability and affordability will be of secondary importance." (pg 17)

A.16 Cricket Communications:

"The lack of affordable broadband services and digital illiteracy are perhaps the two most challenging barriers to broadband adoption. In densely populated areas of the country... individuals from disadvantaged and minority communities—simply cannot pay the current rates or satisfy the financial criteria to subscribe to those services. Even if those consumers could afford it, broadband service is of no use without a computer or other access device, along with the knowledge and skills necessary to operate that device. To overcome these challenges, the Commission should advance policies and programs that offer both financial and instructional support to facilitate broadband adoption, particularly for communities most in need." (pg 4)

"...programs to improve digital literacy [can] lead to higher broadband adoption rates, both at the local and national level. For instance, an independent evaluation of participants in digital literacy training from One Economy showed that, compared to the national average [for low income Americans], those individuals with training were: using the Internet and broadband at rates higher than other low-income Americans; ... improving job performance, health outcomes, and community connections through Internet use; engaging in specific online activities—such as enrolling in web-based courses—that can lead to positive social and economic outcomes." (pg 9)

A.17 Consumer Policy Solutions:

"While the percentage of homes with access to broadband service is relatively high (82% have access to DSL and 96% have access to cable modem service), the rate of broadband adoption is far lower...." (pg 4-5) "Of particular concern are certain underserved consumer groups that have lower than average adoption rates, such as older adults." (pg 5)

"...the benefits of broadband service are huge for the aging community. Telemedicine, lessening isolation, maintaining communications with family and friends, long-distance learning, are just a few of the benefits broadband service can offer to enhance the daily life of an aging adult." (pg 5) "For example, technology training programs in the community for older individuals to help address the 'usability' barrier that confronts a number of older individuals." (pg 6)

"In addition to the four factors...(relevance, availability, usability, and price) the Commission should consider two other factors that currently serve as barriers: consumer concerns regarding online safety and privacy." (pg 7-8) Consumer Policy Solutions

asserts that some of these issues impact the consumer experience on the Internet, and thus have a direct relationship to their adoption, online behaviors, and retention of broadband service. The national plan is therefore a most appropriate forum for addressing these Internet safety risks.

A.18 Rich Greenfield:

"Broadband penetration can be defined as the result of broadband availability and affordability. Assuming the general desirability of broadband access in almost all communities, a low take-rate would be an indication that some obstacle (lack of awareness, training, equipment or affordable service) remains which is preventing widespread broadband adoption." (pg 34)

A.19 Google:

"It is equally important for the FCC to evaluate the *demand side* of the broadband adoption challenges. The FCC should collect data [which] ...would provide significant insight into how Americans use broadband connections (*i.e.*, for personal, informational or entertainment uses, for work or income opportunities, for interaction with federal, state, or local governments), and what segments of American society use broadband more or less than others. Such data would also examine why some Americans choose not to use broadband Internet services, which may depend on pricing/income considerations, differences in the perceived value of broadband, and/or computer and Internet literacy issues." (pg 16)

"Similarly, the FCC should consider educational projects to inform the public of what broadband services and applications are available, and how these services and applications can improve American's ability to improve access to critical health, community, economic, and political information and services. This education should focus on both the young and older Americans." (pg 17)

"Google notes that the BTOP program provides for government funding of educational efforts designed to foster broadband adoption. The FCC should recommend that NTIA use a portion of such funding to educate students in America's colleges, universities, and other institutions about the opportunities and potential of broadband applications innovation and growth. NTIA funding should also be used for the education of older Americans and low-income Americans who may require additional assistance in making the transition to broadband services and applications." (pg 36)

A.20 National Association of State Utility Consumer Advocates:

"...a major impediment to effective use for many people is a basic unfamiliarity with computers and the internet. Public computing centers can play an important role in breaking down this barrier and stimulating broadband adoption, provided that the programs are designed in a user friendly manner and offer skills and information that would encourage participation by the people in a community." (pg 70) A successful

program would "...accommodate special needs...such as providing material in multiple languages, large print, having no physical barriers to access, [etc.]" (pg 70)

"Training to use the technology effectively should include hands-on instruction... [and] should focus on accessing interesting, relevant content available through the Internet, such as...history and culture; job hunting; improving language skills; [etc.]" (pg 70-71)

NASUCA goes on to recommend locations for the training, such as public computer centers in low income neighborhoods, and Community Colleges open to the entire community.

"...NASUCA urges the Commission to give community-based organizations a prominent place in the National Broadband Plan. Community based organizations play a major role in providing people access to computers with broadband as well as training and support services. Such organizations have proven success in providing services to populations not otherwise reached. By establishing computer learning centers at already established community-based organizations, families have ready access to the computers, employment counseling, continued education, literacy classes, 'English as a Second Language' programs, citizenship classes, and emergency services. Many hard-to-reach youth feel more comfortable in computer technology programs that are not located on school grounds." (pg 72)

A.21 American Legislative Exchange Council:

"...government can also promote and encourage broadband adoption and use through public outreach. Government efforts to promote digital or broadband literacy through promotional ad campaigns or through educational efforts can help citizens who have not adopted broadband or who seldom use it to make better informed decisions about the benefits of broadband." (pg 7)

A.22 Public Knowledge, Media Access Project, The New America Foundation, U.S. PIRG:

"The reason the U.S. is falling behind can be traced directly to the decisions the Commission made over the past 10 years to reclassify broadband...as an 'information service' instead of as a 'telecommunications service.'" (pg 26)

"The Commission's role should be to track and, if necessary, contribute to research on broadband take-up by continually examining pricing data, take rates for the service and build-out progress, and reporting that research to the public. The Commission could also support locally based research, from universities or other institutions, which tracks why, and why not, broadband might be lagging in any particular area." (pg 42-43)

"Implementing other parts of the broadband plan, of course, could help adoption rates to increase. By allowing for more competition, consumers would have more choice in

services and features, and at lower prices than offered in today's quasi-duopoly environment." (pg 43)

"In raising awareness of the value of broadband, the Commission should endeavor to support local groups already engaged in such activities." (pg 43)

A.23 New America Foundation, Public Knowledge, Media Access Project:

"Telehealth applications such as remote patient monitoring and e-visits...are integral to driving broadband adoption among older residents. Similarly, in home broadband access is essential for students to utilize web-based curriculum or homework from their primary school or community college." (pg 12)

A.24 Massachusetts Broadband Institute And The Massachusetts Department Of Telecommunications And Cable:

"The Commission should ensure state involvement with its broadband plan because of these unique qualifications. First, states have intimate knowledge of local conditions. Second, states have pre-existing relationships that will help them quickly coordinate the...education programs aimed at increasing broadband adoption and demand." (pg 5)

A.25 AT&T:

"Lack of education and training about the benefits of broadband...[and] low income levels make it challenging for some Americans to afford either the upfront equipment (*e.g.*, computers) or monthly subscription for broadband service..." "Americans with disabilities struggle to identify or access the services or equipment they need. The Plan must...[provide] training and public access to broadband services; economic assistance for...services and equipment; and incentives for the development of technology and content aimed at specific users' needs." (pg 9)

"The Plan should encourage ongoing private-sector efforts to create clear and understandable privacy policies that give consumers individual control over how their data are used."

"Addressing the adoption challenges for [low income households] should be an important priority of the Plan." (pg 61) "But an even more fundamental concern [for low income households] is affordability..." (pg 61) "One way to address both of these challenges is to ensure that broadband services are made available at community institutions that serve lower-income populations, and that training opportunities are provided at those institutions." (pg 62) "The Recovery Act funding... should help...but the Broadband Plan should support additional efforts in this regard." (pg 62)

"...the Plan should support measures that bring the costs of broadband adoption closer to what lower income Americans can afford." "The Lifeline and Link-Up programs...[should be extended] to support broadband access services; this will ensure that consumers with lower incomes can both acquire broadband access and afford the

monthly service charges. The Commission already has recognized that, consistent with existing law, it has authority to establish a Lifeline support mechanism for broadband (and a similar broadband Link-Up program)." (pg 62)

"While an enhanced Link-Up program might help defray the costs of initiating broadband service,...some Americans may also lack the resources to purchase computers or other devices that are necessary for the use of broadband service." "[However,] Link-Up generally focuses on... service, not the consumer's purchase of [hardware]." "Instead, the federal government and state and local agencies should provide funding and additional support to programs that supply low-income households with the equipment they need to access the Internet." (pg 64)

A.26 United States Telecom Association:

"...some of the government's greatest opportunity for improving lives through broadband access lies in eliminating barriers to adoption in areas where broadband is already available. While Americans have embraced broadband more quickly than any prior network technology, low income groups, the elderly and other disadvantaged communities that could most benefit from the benefits broadband has to offer are also the most undersubscribed." (pg 4)

"Congress and the Commission should consider [programs to] lower barriers to broadband adoption, particularly among low income and other under-represented demographic groups. For example, creating incentives for deployment to other key institutions and 'anchor tenants' in underserved areas could create on-line access opportunities for those without broadband at home...." "Such programs are particularly essential to bringing the benefits of broadband to low income and other under-represented demographic populations and should be considered a key interim step to reaching both 100% access and 100% adoption of broadband." (pg 15)

A.27 National Cable & Telecommunications Association:

"The Commission should...identify policies that will increase the value and promote the affordability of high-speed Internet access services so that even more Americans will choose to take advantage of the tremendous benefits available through the use of broadband technology." (pg 9)

"An important second priority for the National Broadband Plan should be to enable underserved *populations* – in particular, rural and low-income households – to acquire and make effective use of broadband service where it is already available. Many such households do not subscribe to the broadband services that are available because they do not have the necessary equipment, training, or educational opportunities to take advantage of the benefits of Internet use. Indeed, approximately 35 million households in the United States that currently have access to broadband do not purchase high-speed Internet access service." (pg 44)

"Demand-side... [programs could include] for example, making computers or laptops available at a discount to qualifying households, subsidizing monthly service fees for low-income households, providing for reimbursement of telehealth expenditures, or other tailored means designed to stimulate adoption by targeted groups." (pg 44)

"...the Commission should also consider more formally educating consumers on the value of broadband, including the savings in time and money...the additional employment and educational opportunities...and the increased opportunity for civic participation...."

"Ensuring that consumers feel confident that Internet use is safe for their families and that their data and identities are secure would also encourage greater use of broadband." (pg 44-45)

A.28 Cisco Systems:

"In many areas, consumers have declined to subscribe to broadband services that are available, very often because they cannot afford the service or do not believe it to be worth the price." (pg 4)

Citing that low income Americans are the most likely to be left behind, and that the demand problem is particularly acute in rural areas, Cisco recommends "[t]he Commission should...take a deferential stance toward experimental pricing frameworks (e.g. tiered offerings) employed by providers to promote adoption." (pg 4) "The Commission should recognize the key role new and emerging applications will play in promoting demand (streaming video in telemedicine, distance learning, remote work." (pg 30) Cisco states that "broadband demand is likely to be driven by the growth of four sectors: health care, education, remote work/collaboration, and energy." (pg 31)

Cisco also recommends that the "Commission should act on pending petitions to expand the link-Up and Lifeline programs (to subsidize the set-up and subscription fees associated with broadband for low income Americans)." (pg 28)

A.29 Family Online Safety Institute:

"The Commission can help ensure sustainable broadband adoption by highlighting the need for more government leadership in advancing online safety education and awareness and including responsibility as an element in the national broadband plan. Educating our youth and adults about how to stay safe while engaging in online activities must be a fundamental component of any effort to increase broadband adoption rates and to ensure that new users and existing users alike continue to stay online. As people learn how to lead safe and secure online lives, broadband adoption will increase because people will understand how to minimize the risks and capitalize on the overwhelming benefits that come from the use of broadband." (pg 5)

"Online safety education efforts should be pursued within the broader context of digital literacy to give Internet users the skills they need to make wise choices online and empower them to feel safe and secure in their online activities." (pg 5-6)

A.30 Institute for Policy Innovation:

"...other than those for whom broadband was simply not available, a great many indicated that they simply did not see the value on having broadband in their home, or that online use was generally a waste of time—pointing to *a demand challenge not a supply failure*." (pg 5)

"There are persistent calls for the government to provide greater 'education' regarding the benefits of broadband so that consumers will increase their rate of broadband adoption. However...there are many reasons that folks don't take up broadband." "Certainly one factor is cost but...a combination of factors are listed many of which demonstrate that real decisions have already been made about the worth of the Internet, and thereby the need for broadband, to the individual. Given the pervasive media coverage, marketing by competitors, and general social understanding of the benefits of broadband, the question must be asked whether taxpayers should even support the notion of government 'education' in the area of broadband, particularly considering the likely rapidly diminishing returns." "Government should focus efforts on deployment and accept the diminishing returns of persuasion and advertising." (pg 25)

A.31 Independent Telephone & Telecommunications Alliance:

"... some consumers in urban and rural markets will generally find services unaffordable. In those instances, the [national broadband plan] should consider recommending the creation of a broadband adoption program that provides broadband service discounts to low-income consumers. Benefits under such a program would be based upon the income of the household subscribing." (pg 26)

A.32 Mercatus Center at George Mason University:

"Given that education and income tend to be correlated with each other, the biggest barriers to broadband adoption that could be addressed cost-effectively may be relevance, consumer awareness, and perceived value rather than price." (pg 16)

"For example, policies like ConnectKentucky's 'No Child Left Offline' may be far more cost-effective in encouraging broadband adoption than subsidies for construction of networks. No Child Left Offline combines public and private efforts to provide computers to 'economically disadvantaged' children. One of the greatest barriers to broadband subscribership in Kentucky was 'no computer at home' (representing 51 percent of nonsubscribers). The No Child Left Offline policy enabled low-income families to obtain a household computer, increasing computer ownership by four to five times in the counties served by this policy, which in turn led to a 200 percent increase in broadband adoption by low-income families." (pg 17)

"'Contrived competition' via unbundling does not increase broadband subscribership, but facilities-based or 'platform' competition does. A study of broadband adoption rates across U.S. states in 2000 by Debra Aron and David Burnstein found that facilities-based

competition has a big effect on broadband adoption rates. In fact, they found that broadband availability had no effect on adoption rates after controlling for the percentage of the population living in places where DSL and cable modem competed; facilities based competition drove the broadband adoption rate." (pg 18)

A.33 Arts + Labs:

"A look at the data makes clear that many Americans are not yet fully convinced that broadband is vital for them. Most Americans live in communities where broadband service is available, but roughly 4 of every ten homes have not yet signed up for service." (pg 3)

"To address the adoption shortfall will require a combination of responses. We will need digital literacy programs that promote adoption by helping people understand how broadband connectivity can enrich their lives. For those who may be concerned or intimidated by the online world, we must find ways to ease their anxiety about entering digital society. We also will require new initiatives to deliver broadband, and perhaps computers themselves, to those who simply lack the income to afford it on their own." (pg 3)

"When consumers refuse to adopt broadband or limit their online activities because of fear [of privacy and security risks, malicious activity, and cybercrime], the value of the Internet declines and the incentive for private sector investment falls with it. As part of our efforts to drive broadband adoption, our national strategy must identify policies that will limit the threat of cybercrime and other anti-social activity online." (pg 5)

A.34 Comcast Corporation:

"...many consumers choose not to access broadband Internet services... at home[, and instead] choose to access the Internet from a variety of other places, including work, school, libraries, airports, and local coffee shops." "Frequently-cited reports about broadband Internet adoption may be overlooking a significant number of broadband connections: 'Data from the Census Bureau and the Nielsen Company together suggest that both the OECD and the FCC [broadband Internet subscriber] counts miss approximately 72 million workplace connections.'" (pg 22)

"The Plan can serve a constructive role by proposing policies that increase the value proposition for adopting broadband Internet service by increasing computer literacy, getting more valuable government services online, and promoting affordability." "...the Commission's goals [must include an assessment of] what is known, and not yet known, about the drivers of broadband adoption." (pg 74)

"Comcast urges the Commission to consider empanelling a group of survey experts to determine how it can best obtain good data about both how many consumers have adopted broadband and why they did so or, more importantly, why they did not." (pg 87)

"The Plan should recommend collaboration with the Departments of Education and Labor, and with other federal, state, and local agencies and private organizations, to develop digital literacy and technology training programs for teachers and students, and other segments of society that are at risk of being left behind." (pg 97)

"...millions of U.S. households still do not have a computer. Therefore, in addition to stimulating demand for broadband Internet service, the National Broadband Plan should propose solutions for how to facilitate consumers' access to computers and how to make broadband Internet service more affordable for those consumers with limited means." (pg 99-100)

"Another option is to subsidize low-income and unemployed consumers for the cost of broadband Internet service to make it more affordable. The Commission should recommend that Congress directly subsidize broadband Internet service based on strict criteria of need." "Although... extending the USF Lifeline and Link-Up Programs [is one option, it] would place significant burdens on providers contributing to the USF and their customers, threatening the sustainability of the fund. These burdens would also be inequitable, as they would single out customers of USF contributors, rather than taxpayers in general, in subsidizing broadband access for low-income households. Accordingly, the Plan should propose that Congress appropriate direct funding from the Treasury to create new programs to provide direct broadband subsidies targeted to low-income and unemployed Americans." (pg 100)

A.35 Free Press:

"FCC action to create more meaningful marketplace competition will also lead to lower prices and help increase broadband adoption rates in low-income communities. However, many of the programs that will provide the most impact on the digital divide lie outside of the Commission's jurisdiction. Therefore, Congress needs to explore a wide mix of policies aimed at solving this problem, including programs that provide practical technology training, enhance digital literacy, and develop community-based content and applications." (pg 30) The comments from Free Press also discusses adoption factor differences across U.S. states, and data collection.

"By moving to a Census Tract-based reporting system, the Commission (and outside researchers if given access to the data) can use the vast amount of geographic and demographic data available from the Census Bureau to do real social science on broadband adoption." (pg 274)

A.36 Common Sense Media:

"Investing wisely in education and Digital Literacy efforts will also increase demand for broadband. These Digital Literacy programs will build awareness of the benefits of broadband, the Internet and digital technology, while also addressing parent and teacher concerns about the potential dangers of the digital media world." (pg 6)

"Especially in underserved communities, parents and teachers may not recognize the educational and economic potential of broadband access and digital technology for themselves and their children – and may be even more concerned about the potential dangers of the digital media world. A national broadband plan must address this head on." (pg 7)

A.37 OPASTCO (Organization for the Promotion and Advancement of Small Telecommunications Companies):

"...the FCC's video access rules should be reformed expeditiously, because bundling video and broadband spurs broadband adoption, which gives rural ILECs increased incentive and resources to invest in their broadband networks." (pg 6)

"...traditional video subscription services, when bundled along with broadband, remain one of the most potent drivers of broadband adoption and, subsequently, deployment." (pg 51)

A.38 Minority Media and Telecommunications Council:

"Librarians, principals, training center managers, and communication organizations may provide the best record on how to maximize broadband adoption and develop the benefits of broadband education and training at all levels." (pg 4)

A.39 Center for Accessible Technology and Inclusive Technologies:

"We believe that surveys that gather information about how Americans use the various broadband technologies should be replicated and extended broadly to gather similar information about broadband adoption and use, focused on applications. These surveys should focus on how people with various functional limitations use (or are barred from using) broadband technologies, and gather input on how various technologies have or have not been made fully accessible." (pg 6)

A.40 Broadband Diversity Supporters:

"The Commission should ensure that the first priority of a national broadband plan is to achieve maximum utilization and increased broadband adoption and telecommunications literacy for our most vulnerable populations: low-income, minority and multi-cultural communities in rural and urban America..." "Indeed, the adoption gap may be an even broader problem than availability." (pg 4)

"The Commission should critically monitor broadband adoption rates for the low-income, disproportionately minority populations. Low income populations may have physical proximity to two, three, or more forms of broadband service (e.g., cable modem, DSL, wireless), but they likely will yet have no practical access to these services given their low income and the lack of tailored service offerings." (pg 4)

"...the Commission should recognize that broadband is now a baseline essential service, and accordingly should provide at minimum a subsidized broadband connection through a Lifeline/Linkup-style program available to low-income individuals and families." (pg 4)

"...deployment efforts should be accompanied by a comprehensive and extensive broadband adoption and literacy campaign to inform target communities of the availability and benefits of broadband service and how to fully utilize the technology." (pg 6)

"...to achieve the Recovery Act's mandate of ubiquitous broadband adoption, [local groups] will need to play an even-more significant role in the provision of broadband services and outreach, training and education efforts." (pg 5-6)

A.41 TIA (Telecommunications Industry Association):

"Demand-side efforts should include, at a minimum, grants for programs that support adoption by low-income users and subsidies for laptops and other broadband-capable devices, as well as funding for computer and "digital literacy" projects, and funding for programs that bundle the purchase of a PC and broadband subscription at discounted rates for students, rural, low-income, and vulnerable populations." (pg 11-12)

"Empirical evaluations of broadband adoption indicate that take rates are particularly low where users do not have the access to computers and computer centers, have not been exposed to computer training, or do not understand the importance of broadband. Various studies demonstrate that the perceived lack of need for broadband and a lack of computer ownership are top barriers to broadband adoption." (pg 12) "The National Broadband Plan needs to address these barriers to adoption for first time broadband users in these vulnerable urban populations." (pg 13)

"...the Commission's National Broadband Plan must...ensure access to computers and similar equipment in addition to reducing the recurring costs of broadband use." (pg 14)

"TIA supports the extension of the existing Lifeline and Link-Up programs to subsidize broadband Internet access services for low-income Americans." "The Commission has before it two petitions seeking to extend these programs (which now subsidize low-income users' voice service subscription and set-up costs) to broadband service. TIA...urges the Commission to act quickly to bring the benefits of broadband to this underserved community." (pg 14-15)

A.42 Report from the First Broadband Opportunity Summit:

The summit addressed "...the nexus between broadband adoption among people of color in disadvantaged urban and rural communities and...education, healthcare, and energy and the environment." (pg 4)

"...stimulating adoption of broadband services should be the top policy outcome, and [the following] steps could be taken immediately to achieve that outcome." 1)"Stimulate broadband adoption and telecom literacy for low-income, minority and multicultural consumers;" 2)"Fund SDBs, MBEs and other organizations that have a demonstrated commitment and ability to support local community-based projects, and that are culturally and linguistically competent...; and 3)"urge the NTIA to recognize that the \$250 million slated for broadband adoption in the [ARRA] establishes a floor, not a ceiling, for broadband adoption efforts." (pg 4,6)

"...a number of Roundtable participants suggest...establish[ing] a vision for non-adopters in their respective Constituent Communities that would break down barriers to adoption by showing them how broadband would improve their quality of life and save money, among other benefits." (pg 16)

"Broadband affordability was also addressed as a barrier to broadband adoption, particularly for low income consumers who often lack the equipment and training as well as the ability to pay for broadband service." "Finally, concerns about privacy and cyber security, particularly as they relate to the collection of personal financial information and child online protection, were identified as important to efforts to increase broadband adoption..." (pg 17)

"Most participants agreed that the importance of increasing broadband adoption rates in the Constituent Communities requires gathering better information on broadband adoption." (pg 18)

A.43 The 60 Plus Association:

The association states they are "especially enthusiastic about the impact that further broadband adoption could have on our nation's seniors. We know firsthand how Internet connections can enhance the quality of life for senior citizens. Telehealth applications enable seniors to visit doctors without the hassle of long drives and long waits at hospitals and doctors offices. A Veterans Administration study of one remote monitoring program showed a 40% reduction in visits to the emergency room and a 63% cut in hospital admissions. Remote monitoring is also less expensive than in-person patient care." (pg 1)

"Broadband also enhances seniors' quality of life. High-speed Internet links people to online education classes and community resources. Our organization has seen how seniors are using the Internet to take action on causes that are important to them. Unfortunately though, seniors do not adopt broadband at the same rate as their younger counterparts." (pg 2)

A.44 Chamber of Commerce of the United States:

"A National Broadband Plan Should Focus on Broadband Adoption." "Despite the significant progress, rural America is still lagging behind other areas of the country."

"Lack of awareness of the benefits of broadband represents the largest barrier to broadband adoption." (pg 7)

"Policymakers should support public computing centers. Community colleges, libraries, and other public computing centers serve a vital role, especially for those who cannot afford computers or broadband, because jobs, education, and information in the 21st century are all tied to access to technology. More than 70% of those who use library computers say it's their primary source for connecting to the Internet, according to the Bill and Melinda Gates Foundation." (pg 7)

"Broadband can be used to reduce costs, improve efficiency, enhance of quality of life, and increase productivity. There is almost no sector of the American economy or population group that cannot benefit from broadband." (pg 9) "Broadband can improve the quality of and access to healthcare, [and] enables telework and virtual meetings." (pg 10)

A.45 Latinos in Information Sciences and Technology Association:

"In recent years, home broadband adoption by English speaking Hispanics has been on pace with the adoption rates of all adults. According to [Pew], 56% of English speaking Latinos today have a home broadband connection, compared to 55% of all adults. However, these numbers are less encouraging when looking at Latinos with less English proficiency and education. Just one in three Latinos who speak only Spanish use the Internet at all. Barriers for adoption among these groups must be reduced so more Latinos can take advantage of the Internet's benefits." (pg 1)

"Broadband could be an especially important tool for Latinos lacking education and English proficiency. With a broadband connection, these Americans can take classes online and gain access to economic opportunities. One Economy found that when computers and broadband were provided to low-income neighborhoods, residents were 50% more likely to take a class online. 50% also used their computers to apply for jobs, shop online, and manage their finances." (pg 1)

A.46 Fiber-To-The-Home Council:

The FTTH Council commissioned a study (included in its comments), titled "Economic Effects Of Tax Incentives For Broadband Infrastructure Deployment." Citing the report, "The indirect effects of increased broadband investment result from the productivity increases, price reductions, and related savings associated with increased broadband adoption. The tax incentives at issue here would increase broadband adoption due to both (a) increased broadband availability in rural and underserved areas and (b) reduced prices and improved quality associated with the availability of more technologically advanced broadband infrastructures generally." (pg 62)

"To estimate the effect of reduced prices on broadband penetration in these areas, we rely on Atkinson, *et al*, who find that a \$1/month reduction in price per megabit increases broadband penetration by 2.4 percentage points." (pg 64)

"In this study, we have calculated the total economic impact of four different tax incentive proposals relating to increasing broadband deployment and adoption. We find that each of the four proposals generates substantial benefits to the U.S. economy through both increased GDP and increased employment." (pg 65) "These proposals result in even further job creation through their indirect effect of increased broadband adoption." (pg 66)

A.47 Robert Hahn and Scott Wallsten:

Adoption levels need accurate measures to track progress, and the Broadband Data Improvement Act (BDIA) is currently a means for such tracking. Hahn and Wallsten believe the BDIA places "...not enough emphasis on household, consumer, and business surveys. Such surveys are likely to be more useful for policymaking and are less expensive to conduct and update." "...counts of lines now routinely miss most business and university connections [and multi-user household connections], simply because it is not possible for providers to count [all devices and users]. "Line counts are thus likely to underestimate both the number of connections and the number people who use broadband. At the same time, counts of wireless broadband users...likely overestimate the number of wireless broadband users [since not all broadband-enabled devices are actively used for broadband." (pg 15)

"The solution to these problems is to use surveys rather than counts. Surveys can be...rigorously designed to answer specific policy questions." (pg 15) "...Congress should allocate money so that the Census can do these surveys...with input from NTIA and the FCC..." (pg 16)

"Already some of the most useful information about broadband comes not from counts, but from surveys [such as] the Pew Internet and American Life Project...." "These data suggest...policies should probably focus more on assisting low-income individuals, and less on supplying specific geographical regions, such as rural areas that may be quite expensive to serve." "But...more information is needed to design a cost-effective policy. How much, for example, are lower-income individuals willing to pay for computers and broadband access...?" "Some groups, such as the One Economy Corporation, have been implementing programs to bring broadband to disadvantaged groups for several years; careful evaluation of their programs may be useful for designing cost-effective national programs." (pg 16)

"What little we do know about demand comes largely from Pew. The data suggest that nearly half of all people without broadband have no interest in it. This finding...leaves several important policy questions unanswered. Is there any price at which those who claim to have no interest would choose to subscribe? Alternatively, might these people change their mind as the value of being connected increases? The trend over time suggests that the answer to both questions is —yes. While half of all people without

broadband...claim to have no interest, the number of people without broadband has steadily shrunk, meaning that some people who once claimed to have no interest now do. Have they subscribed because prices went down or because more content is now available, making broadband worth more to them? The answers to those questions have important policy implications. If people would subscribe at some price less than available subscriptions prices we can calculate the subsidy necessary to get them online and then determine whether the benefits exceed the costs. If, however, new subscribers chose to go online because broadband became more valuable to them rather than because of falling prices, then we might consider other policy options such as making more government services available online." (pg 17-18)

A.48 USIIA (United States Internet Industry Association) and Netliteracy:

USIIA proposes "a community-based approach to achieving ubiquitous adoption of broadband, based on five programs to:" 1) "Create a national Digital Inclusion initiative to drive broadband adoption." 2) "Create community center education programs to communicate the value proposition for broadband." 3) "Create a flexible and customizable curriculum for use in each community center." 4) "Provide for a "Student Net Literacy Corps." 5) "Provide computers to low-income Americans who do not have them." (pg 9)

"Noninternet users do not have very positive attitudes about information technology. Many report worries about information overload and few link information technology to greater control over their lives. Moreover, non-internet users are apt to see the online environment as a dangerous place – that is, a place with inappropriate or irrelevant content. Given that these non-users are people with worries about information technology and not a lot of extra disposable income, luring them online won't be an easy task." (pg 14)

"Since the barriers to broadband adoption occur among the oldest, least educated and least affluent Americans, programs to increase adoption must be designed specifically to appeal to these populations. And they must be designed on a community basis, to reduce the costs and difficulty of travel and unfamiliarity." (pg 16)

"There is a template for such community-based programs that also addresses the need for computers. It is a program of digital inclusion active since 2003 and currently operated by Net Literacy and its companion programs for community action." (pg 16)

A.49 California Public Utilities Commission:

"California has vigorously pursued the goal of statewide broadband deployment and adoption through both legislative and regulatory measures. In October 2006...a state Broadband Task Force brought together public and private stakeholders to recommend how to remove barriers to broadband access, identify opportunities for increased broadband adoption, and enable the creation and deployment of new advanced communication technologies in this state." (pg 4)

The final report established seven goals (only those related to adoption are shown below):
"Increase the use and adoption of broadband and computer technology - *Expanding the opportunities for Californians to access, use, and learn broadband, at home and in the community, will provide the foundation for a digitally literate society...*" (pg 5)

"Create a statewide e-health network - ...[to] *improve quality of care across the state and simultaneously increase demand for broadband services.*" (pg 5)

"Leverage educational opportunities to increase broadband use - *Ensuring high capacity broadband connections coupled with a robust technology support system, relevant curriculum, literacy standards, and off-campus educational partnerships...*" (pg 5)

"Continue state-level and statewide leadership - *Continuing the California Broadband Initiative and supporting the creation of community Broadband Leadership Councils will strengthen the statewide leadership necessary to drive broadband access and adoption across California.*" (pg 5)

A.50 Benton Foundation Center for Rural Strategies, Rural Policy Research Institute, Telecommunications and Information Policy Institute at The University of Texas:

"Broadband policy should address more than the availability of physical infrastructure. It should address the population's ability to use the network to best effect and consider how we can stimulate demand and use in rural regions." (pg 13) "Programs to help targeted populations understand how to use the capabilities of the Internet are imperative if the technology investment in connectivity is to be justified. The *availability* of infrastructure alone simply is insufficient to guarantee the best use of it." (pg 14)

"Traditional community anchor institutions (e.g., schools, libraries, hospitals, and clinics) should be configured as centers for digital literacy and as hubs of community connectivity. Our broadband policy should provide an affordable broadband connection to every home, and sufficient training and outreach to ensure that the value of broadband is understood." (pg 14)

"Some mechanisms that might be considered include: grants for Internet training programs for... unserved [and] underserved regions; training grants specifically for small businesses in rural regions...support for community-based Internet projects devoted to improving education and health opportunities. Revamped universal service goals should address these education and outreach efforts." (pg 14)

"Community colleges in particular should be targeted for the expertise they can offer rural regions. They are typically the closest higher education entity serving rural populations, and they would be the likeliest to have adequate training facilities that could be made available." (pg 14)

A.51 CostQuest Associates:

"...with demographic information at the census level and pricing and broadband availability, detailed analysis could take place to understand demand issues so that effective demand side programs could be implemented (and potentially funded)." (pg 4)

"Demand-side programs (including programs to expand computer literacy and internet subscription rates) are likely more cost effective than supply side initiatives at increasing broadband penetration." (pg 5)

"While there are guiding principles, and some actions that are likely to be more effective than others, there is no magic formula, and no simple solution – expanding broadband penetration likely requires multiple approaches, and significant effort and coordination." (pg 5)

A.52 American Consumer Institute:

"While many commenters will emphasize a supply-side role for government, we believe its real advantages lie on the demand-side and, accordingly, we encourage a government wide focus on users through a variety of demand enabling initiatives." (pg 3)

"Survey data from the Pew Foundation give substance to claims that deficiencies related to demand, not supply factors like price and availability, account for the largest percentage share of non broadband subscribers. Inadequate demand traceable to an array of causes account for 68% of those without broadband at home, while only 32% of those surveyed cited high price or lack of availability or no access to a computer." (pg 24)

"The plain language of the statute compels a demand-side focus for the [national broadband plan]." "The language makes clear that supply-push strategies must be complemented by demand-pull strategies..." "The emphasis on demand is welcomed, including steps to increase computer penetration and improving computer literacy." "...stimulating demand will permit wider distribution of the huge fixed and sunk costs of networks [leading to] lower rates to all users, which will in turn lead to secondary increases in penetration and usage. (pg 24-25)

"...direct demand stimulus through programs with their initial and primary impact on users will, in contrast with direct supply-side stimulus, ensure that consumer preferences are directly reflected in market exchange processes." (pg 25)

"Government's role on the demand-side is paramount. And, fortunately, is likely to be less contentious in its implementation than on the supply side. Demand enabling and stimulating measures are in substantial part within the province of direct government action or in the actions of publicly funded institutions." (pg 25)